



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

pennsylvania PA

American Recovery and Reinvestment Act

State Energy Plan Update

March 11, 2010

 **RECOVERY.GOV**





Pennsylvania DEP ARRA Program Goals

- Create Jobs and Enduring Opportunities for Employment.
- Increase the Amount of Renewable and Alternative Energy Generated in PA
- Save energy dollars in PA Through Conservation and Efficiency
- Maximize matching private sector Investments to spread the impact of ARRA Funding



ARRA Energy Funding Overview

\$136.5 Million for Energy Programs

- \$99.6 Million for the State Energy Plan,
- \$23.5 Million for EECBG,
- \$11.9 Million for Home Heating Equip. Rebate
- \$1.3 Million for Energy Assurance Planning.

Note: \$253 million is also allocated to the Weatherization Assistance Program under the Department of Community and Economic Development



Programs

- ☑ PA Conservation Works!
- ☐ Home Heating Equipment Rebates
- ☑ Energy Assurance Planning
- PA Green Energy Works!
 - ☑ Sustainable Business Recovery
 - ☑ Combined Heat & Power
 - ☑ Clean Biogas
 - ☑ Solar Project Funds
 - ☑ PA Wind Initiative
 - ☑ Green Development Loans
 - ☐ Geothermal Buildings



Progress

- By April 2010, DEP have obligated \$114,458,522, or 84%, of the \$136,544,964 in ARRA energy funds available for grant funding.
- DEP is developing the two final market titles under the Green Energy Works Program
 - The Geothermal Loan Program
 - A second solar award for manufacturing



Energy Program Results

- Total Invested to date from ARRA energy programs \$102,514,522
- Total leveraged from grantees: \$225.7 million
- Electricity Generated/Saved: 4.1 million MWH - at least \$200 million
- Natural Gas Generated/Saved 5.2 Bcf - at least \$52 million
- Jobs Created/Retained: Over 650 with another 500 expected



PA Conservation Works!

- **Conservation Works! – Received \$23,574,800**
 - \$22,144,463 Awarded (100 grants being executed)
 - \$1,430,337 for Administration
 - All funding is allocated
- \$22.2 million invested in 100 projects from 503 applications
- Over \$16 million in matching investments.



PA Conservation Works! - Results

- 68 local governments and municipal authorities;
- 32 nonprofits
- 48 of 67 counties received funding for at least one project
 - Energy Savings
 - Over 570 million kwh
 - or at least \$57 million
 - Electricity generated
 - 14.4 million kilowatt hours
 - or at least \$1.4 million
 - Natural gas savings
 - 2.1 BCF
 - or at least \$21 million
 - Reducing carbon dioxide emissions 450,000 tons, like taking 75,000 passenger cars off the road.



ARRA Heating Equipment Rebates

- \$11.9 million formula grant to Pennsylvania from the Department of Energy
- Rebates for non-electric hot water heaters, furnaces and boilers
- Vendor selection to be announced mid-March.
- Rebates range \$250 - \$500 and will not be retroactive
- An on line reservation system will ensure that rebates are easily available
- Program will open April 2010



ARRA Energy Assurance Planning

- \$1.3 million formula grant from DOE
- Project will upgrade readiness for energy emergencies
 - Revise energy emergency plans
 - Train staff at PEMA, PUC and DEP
 - Sponsor state-level and regional exercises under DHS
- Contractor in place to support planning and exercises



Green Energy Works!

- ARRA Funds: \$99,684,000
- \$79,727,059 awarded
 - \$18,157,918 Executed Grant Agreements -
\$3,563,431 Invoiced and reimbursed
 - \$61,569,141 Awarded with grant agreements
being developed
- \$17,400,884 Under development
(Geothermal Loan and Solar II)
- \$2,556,057 for Administration



GEW - Sustainable Business Recovery

- **Funding \$18 million for 25 projects**

- 27 projects are underway
- 2 are completed
- Generate or save more than 1 billion kwh (\$100 million) or 52 million kwh annually, enough to power more than 5,000 homes;
- Reduce carbon dioxide emissions by nearly 100 million pounds, like taking 8,561 passenger cars off the highway.
- Over \$90 Million in investments by grantees



Sustainable Business Recovery Examples

- **Carlisle SynTech**, 200 kilowatt solar system to demonstrate the company's integrated solar roofing product (Solyndra).
- **Lancaster County Solid Waste Management Authority** – Deploying two 1.6 GE MW wind turbines to supply green power to the Turkey Hill Dairy. The dairy plans to market “I Scream for Green” Ice Cream made with 100% renewable energy.
- **Crayola, LLC** Deploying a 1.9 MW solar powered facility to supply 10% of its power needs and one-third of the energy consumed for crayon manufacturing.



PA Green Energy Works! Combined Heat and Power

- \$12 million, 9 projects.
- Attracted \$15.7 million in additional investments.
- Create nearly 15 megawatts of power capacity and huge amounts of steam for heating, cooling and process
- Generate more than 1.8 million megawatt hours of electricity over their lifetimes worth at least \$180,000 and enough to power 180,000 homes for one year.
- Reduce carbon dioxide emissions by more than 1.1 million tons — like taking 180,000 passenger vehicles off the road.



Combined Heat and Power - Examples

- **Abington Memorial Hospital** Installation of a 4.5 megawatt natural gas-fired combustion turbine that will produce steam for heating and cooling and serve approximately 66 percent of its onsite electricity needs.
- **Geisinger Medical Center** Installation of a 5 megawatt gas fired, combined cycle generator. This will produce 20,000 megawatt hours of electricity per year saving more than \$1.4 million annually.
- **Mount Joy Wire Corporation** Installation of a 1 megawatt micro turbine combined heat and power system to meet nearly all of its manufacturing process energy requirements.



Green Energy Works – Clean Biogas

- \$5 million, 8 projects
- An additional \$22 million in additional investments.
- Lifetime power production of more than 470,000 megawatt hours – enough to power more than 47,000 average homes for one year.
- Lifetime gas production of 3,183 million cubic feet – enough to heat more than 37,000 average homes .
- Reduce carbon dioxide emissions by more than 237,000 tons — like taking 41,00 passenger vehicles off the road.



Clean Biogas - Examples

- **Schreiber Foods Inc.** Install a 1.1 megawatt biogas-powered energy recovery system for their dairy plant expansion project. Food processing capacity will triple.
- **Furmano Foods Inc.** This project uses methane gas from the company's wastewater treatment plant to produce electricity. This will support expansion of plant operations.
- **York City Sewer Authority** Replaces the treatment plant's obsolete co-generation system with a more efficient micro-turbine to be powered by methane produced during the wastewater treatment process.



Green Energy Works

Solar I - Deployment

- \$9.5 million for 8 projects.
- Attracting nearly \$46 million in private investments.
- Generate more than 311,000 megawatts hours of electricity over their lifetimes. Equal to powering more than 31,100 homes for one year.
- Reduce carbon dioxide gas emissions by 212,000 tons. equivalent to removing nearly 37,000 passenger vehicles from our roads.



Solar I - Examples

- Scheuten Solar USA Inc. Convert a brownfield into a 5-megawatt solar power plant at the Keystone Industrial Port Complex
- Merck & Co. Inc. Integrate a 1.5 MW solar photovoltaic system into an existing parking garage while maintaining existing parking capacity. The project will also install plug-in hybrid and electric vehicle recharging stations powered by the solar system. This creates the first zero-emission vehicle fueling station in Pennsylvania.
- Philadelphia Housing Authority Install solar panels on low income housing owned by the Philadelphia Housing Authority and connect the system to the PECO SmartGrid.



Green Energy Works – PA Wind Initiative

- \$22.3 million for 100 MW in 3 projects
- \$7.8 million for Gamesa to install 19 two-megawatt wind turbines at the Chestnut Flats Wind Farm in Cambria and Blair counties. The project is expected to create 85 jobs.
- \$10 million Iberdrola Renewables' South Chestnut wind project to install 23 two-megawatt turbines in Fayette County that will create 129 jobs.
- \$5 million for the Broad Mountain Wind Energy Center's installation of eight turbines near Frackville in Schuylkill County under a project that will create 43 jobs in projects



Green Energy Works

Solar II - Manufacturing

■ Solar II Clean Advanced Energy Manufacturing

- Support deployment of manufactured products that helps PA achieve AEPS standards as well as increase energy efficiency in the manufacture of alternative and renewable energy technologies
- Intend to award 5 million to one recipient this spring

■ HelioSphera

- One of the worlds most competitive and innovative thin-film solar panel producers.
- Locating a 150 MW thin-film solar panel manufacturing facility at the Philadelphia Navy Yard.
- Manufacturing of 1.2 Million solar modules annually.
- Using Oerlikon Solar micromorph technology offering the best combination of efficiency and module power on the market today. Low system costs provides a cost competitive product.



Green Energy Works - Solar II

- ARRA funding will support the deployment of energy saving production equipment that will \$4.8 million in annual electric costs.
- Total capital investment approximately \$500 Million
- Construction scheduled to begin August 2010
- Production commencing January 2012
- The new facility will create 400 jobs with an average salary of \$57,000 and leverage hundreds of millions of dollars of private investment.



Green Energy Works Green Development Loans

- \$12 million in ARRA capital
- Match of \$36 million from The Reinvestment Fund (TRF) to create a \$48 million revolving loan fund
- Supports high efficiency buildings and businesses.
- Program will open mid-April
- Potential to Create or Retain over 500 Jobs
- Save Nearly 200,000MBTU's of Energy and Over \$1 Million in Costs.



Green Energy Works

Geothermal Buildings

- Geothermal Loan Program - approximately \$10 Million
- Program will include loans and rebates to residential customers for ground source heating and air conditioning systems
- Program may include loans and rebates to installers for equipment and training to appropriately deploy geothermal exchange HVAC systems
- Will use the state's existing energy efficient contractor workforce.